

PROTECT ROSES FROM CROWN GALL

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Stock plants represent a long-term investment to the grower propagating roses. The extra care and sanitation necessary to maintain healthy stock plants will be repaid by improved yields in propagation and better quality plants produced. This paper is a compilation of suggestions to help the grower protect his investment by excluding the crown gall bacterium (Agrobacterium tumefaciens (E. F. Smith & Townsend Conn.)).

When this microorganism infests wounds of root or stem tissues, it causes abnormal and unsightly tumorous growths to develop. There is a marked reduction in plant vigor and cuttings do not root as readily. To avoid infected plants in taking cuttings for propagation is to reduce the hazard of spreading this disease to new plants.

PLANT INTRODUCTIONS: Every grower should have a special holding area, entirely separate from the established rose plantings, where newly introduced plants are maintained under voluntary isolation for at least one year. These plants may be planted in the ground, although it is more desirable to plant them in large size containers. The isolation period serves two purposes: first, to prevent spread of undetected crown gall into existing plantings, and second, to permit undetected infections to develop to the point where they may be observed. A final inspection of the roots and basal stem should be made before plants are moved from the isolation area. If crown gall is detected, the plants should be destroyed. Only tips of plants found free of crown gall should be used for propagation. Movement into the isolation area should be restricted to prevent the spread of crown gall bacteria which may be present on the newly introduced plants.

NURSERY OPERATION: Since this parasite can survive in soil all potting media, regardless of source, should be steam sterilized or fumigated with methyl bromide prior to use. Methyl bromide should be used at a rate of 4 lbs. per 100 sq. ft. of soil. (See Circular S-55, University of Florida Agricultural Experiment Stations for instructions and precautions on the use of this fumigant.) Ground pits are adequate for the fumigation operation. However, a concrete bin is the most satisfactory arrangement. The entire depth of soil to be fumigated should not exceed 12 inches. Broom handle holes should be made from top to bottom of medium on 2 ft. centers for better penetration by the gas. The plastic film or other gas proof covering used in treatment should be left in place for at least 48 hours. Once fumigated, the medium should be stored in closed bins to prevent contamination.

Implements used in the grafting or pruning operations should be sterilized at convenient intervals by wiping blades with 15 percent clorox or with 70 percent ethyl alcohol. Digging equipment should be swept clean of soil before it is moved from one area to another. Previously used plant containers should be thoroughly scrubbed to remove soil particles then dipped in a solution of 15 percent clorox. Remember that bacteria may be physically transported to a new location on hands, clothing, implements, and animals.

References Used:

- McFadden, Samuel E. 1963. Personal correspondence.
Williamson, C. E. 1955. Mimeo State Plant Board. Soil fumigation for disease and pest control.